

REMARKS

I. Status of the Application

Claims 18, 20-37 are pending in this application. In the August 4, 2008 office action, the Examiner:

- A. Objected to claims 23-28 due to informalities;
- B. Rejected claims 18 and 20-37 as being unpatentable over US 7,289,502 to Gemelli et al. (hereinafter “Gemelli”) in view of US Pub 2003/0081554 to Huang et al. (hereinafter “Huang”);
- C. Rejected claims 21 and 33 as being unpatentable over Gemelli in view of Huang and further in view of US 6,026,198 to Okada et al.;
- D. Rejected claim 29 as being unpatentable over Gemelli et al. in view of Huang et al. and further in view of US 6,094,431 to Yamato et al.;
- E. Rejected claim 31 as being unpatentable over Gemelli in view of Huang; and
- F. Rejected claims 22 and 34 as being unpatentable over Gemelli in view of Huang in further view of US Pub 2003/0222996 to Patej et al.

In this response, applicants have amended claims 23, 24 and 35 to correct a clerical error. Applicants respectfully traverse the examiner’s rejection of claims 18 and 20-37 in view of the following remarks.

II. The Objections to the Claims Should be Withdrawn

In the August 4, 2008 Office action, the examiner objected to claims 23-28 and 35 for

depending on a cancelled claim. In this response, applicant has amended claims 23, 24 and 35 to correct this clerical error. Accordingly, the examiner's objection to claims 23, 24 and 35 are now moot and should be withdrawn.

III. The Rejection of Independent Claims 18, 30 and 36 Should be Withdrawn

In the August 4, 2008 Office action, the examiner rejected each of independent claims 18, 30 and 36 under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over Gemelli in view of Huang. Applicants respectfully traverse the examiner's rejection of independent claims 18, 30 and 36 as the examiner has failed to make a *prima facie* case of obviousness under MPEP § 2143.

The Examiner's rationale for a finding of obviousness in the August 4, 2008 Office action is not specifically stated in the context of the examples of MPEP § 2143. However, Applicant notes that pursuant to MPEP 2143, "the key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious." Furthermore, in order to establish a *prima facie* case of obviousness, three basic criteria should be met as set forth in MPEP § 2143.01-2143.03. First, all claim limitations must be considered. MPEP § 2143.03. Second, there must be some suggestion or motivation to modify the references or combine reference teachings. MPEP § 2143.01. Third, there must be a reasonable expectation of success. MPEP § 2143.02.

A. The References Do Not Teach or Suggest All Claim Limitations

In the present case, it is respectfully submitted that neither Gemelli nor Huang teach or suggest all the limitations of amended claims 18.

1. Claims 18, 30 and 36

As set forth in claim 18, a process of routing data packets comprises (a) extracting a destination address identifier from a data packet to be forwarded, (b) compressing the destination address identifier using a compression algorithm, (c) comparing the compressed destination address identifier with forwarding addresses available for routing, which forwarding addresses have been compressed using the compression algorithm and stored as entries of a routing table, and (d) if a positive comparison between the compressed destination address identifier and an entry stored in the routing table is found, switching the data packet to an output link associated with the forwarding address corresponding to the entry. Related limitations are also found in claims 30 and 36.

As can be seen, the foregoing limitations include the concepts of compressing the destination address identifier and storing compressed forwarding addresses as entries of a routing table, the forwarding addresses having been compressed using the same compression algorithm as used for compressing the destination address identifier. In order to find a correspondence between the destination address identifier and an entry of the routing table, the compressed destination address identifier is compared to the compressed forwarding address. That is to say, the destination address identifier extracted from the data packet and the forwarding addresses stored in the routing table are both subjected to the same compression algorithm and then compared to each other.

2. Gemelli

Gemelli relates to processes of routing data packets, which may involve compression of a destination address of packets to be forwarded (see, e.g., col. 1, lines 8-11). As admitted by the examiner at page 4 of the August 4, 2008 office action, Gemelli does not teach that forwarding addresses are compressed using the same compression algorithm as used for compressing the destination addresses and stored as entries of a routing table.

Moreover, Gemelli also fails to teach a comparison between a compressed destination address identifier with compressed forwarding addresses so as to find a correspondence between the destination address and an entry of the routing table. In this respect, Gemelli generally describes a process in which an address mask is generated until an entry matching a masked address is found in a data base (see col. 2, line 66 – col. 3, line 2 of Gemelli). Further, Gemelli mentions that a network prefix contained in an IP address is considered in order to search in a forwarding table using the network prefix as its key. None of these processes corresponds to a comparison between a compressed destination address identifier and a compressed forwarding address. Here, it should also be noted that a search is not the same as a comparison. Moreover, there is no indication in Gemelli to indicate that entities should be compared to each other.

In view of the foregoing, Gemelli clearly fails to teach that forwarding addresses are compressed using the same compression algorithm as used for the destination addresses. Gemelli also fails to indicate a comparison between the compressed destination addresses and compressed forwarding addresses. Accordingly, Gemelli does not disclose the limitations of claims 18, 30 and 36 as argued by the examiner. For example, Gemelli does not disclose the

limitation of claim 18 of “comparing the compressed destination address identifier with forwarding addresses available for routing, which forwarding addresses have been compressed using the compression algorithm and stored as entries of a routing table”.

3. Huang

Huang relates to forwarding table lookup processes. In Figs. 2a and 2b of Huang, a “compression bit map method” is illustrated. By means of this method, a forwarding table as illustrated in Fig. 1 can be compressed to a smaller size. Details of the compression method are given in paragraph [0007].

According to the compression bit map method as described in Huang, a forwarding table 520 and a next hop array 530 provide a compressed version of the forwarding table 510 as illustrated in Fig. 1. The compression is obtained by considering ranges of the forwarding table, each range being associated with a corresponding output port. In the example as described in paragraph [0007] of Huang, a first range of the forwarding table extends from network address 00000000 to network address 00100000, a second range extends from network address 00100000 to network address 00101011, a third range extends from network address 00101011 to network address 00101100, a fourth range extends from network address 00101100 to network address 00110000, a fifth range extends from network address 00110000 to network address 10100100, a sixth range extends from network address 10100100 to network address 10100101, and a seventh range extends from network address 10100101 to network address 11111111. In the compression bit map method, the forwarding table 520 includes one bit for each of the possible network addresses. If the network address

corresponds to a starting entry of a range, i.e., the first network address of a range, the corresponding bit of the forwarding table 520 is set to “1”. For all other entries, the corresponding bit of the forwarding table 520 is set to “0”. The next hop array 530 includes the output ports associated with the starting entries. Accordingly, the forwarding table 520 and the next hop array 530 actually include only information as to which network addresses correspond to a starting point of a range, and the output port associated with this range. As typically the number of ranges is smaller than the total number of possible network addresses, less memory is required to store the forwarding table.

However, when considering the invention as claimed in independent claims 18, 30 and 36 of the present application, the above concepts as described in Huang do not correspond to compressing forwarding addresses and storing the compressed forwarding addresses as entries in the routing table. Rather, Huang proposes concepts which, due to a specific structure of the forwarding table, allow for accommodating the forwarding table in less memory. Instead of compressing individual forwarding addresses, the concepts of Huang involve making a selection of specific forwarding addresses, namely network addresses corresponding to a starting point of a range. There are no teachings in Huang which relate to the compression of an individual forwarding address.

The other concepts of compressing a forwarding table as described in Huang have similar characteristics, i.e., they are based on providing a particular structure of the forwarding table, thereby allowing for a reduction of the size of the forwarding table, however without compressing individual forwarding addresses and storing the compressed forwarding addresses as entries in the forwarding table.

In view of the foregoing, Huang does not disclose the limitations of claims 18, 30 and 36 argued by the examiner. In particular, Huang, like Gemelli, does not disclose the limitation of claim 18 of “comparing the compressed destination address identifier with forwarding addresses available for routing, which forwarding addresses have been compressed using the compression algorithm and stored as entries of a routing table”, or any related limitations in claims 30 or 36.

4. The Combination of Gemelli and Huang

As set forth above, neither Gemelli nor Huang, alone or in combination disclose all the limitations of claims 18, 30 and 36. Accordingly, it is respectfully submitted that the Examiner has not made a *prima facie* case of obviousness and the 35 U.S.C. 103(a) rejection of claims 18, 30 and 36 should be withdrawn.

B. There is no Motivation to Combine Gemelli and Huang

The mere fact that references can be combined or modified does not render the resultant combination obvious unless “there is some teaching, suggestion or motivation” to combine the references. MPEP § 2143.01. Applicants respectfully submit that, while Gemelli and Huang could be combined, the examiner has not established a teaching, suggestion or motivation for combining the references. Furthermore, the examiner has not established that the proposed resultant combination would have been predictable to one of ordinary skill in the art, as required by MPEP § 2143.01. As set forth in MPEP § 2143.01, “rejections based on obviousness cannot be sustained with mere conclusory statements; instead, there must be some

articulated reasoning with rational underpinning to support the legal conclusion of obviousness.” Furthermore, “the key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious ... [and] the analysis supporting the rejection under 35 U.S.C. § 103 should be made explicit.” MPEP § 2143.

At page 4 of the August 4, 2008 Office action, the examiner provides only the following rationale for the combination of Gemelli and Huang: “it would have been obvious to one of ordinary skill in the art at the time of the invention was made to [modify] Gemelli et al. by compressing the forwarding address to occupy less memory space, which is smaller than the forwarding table”. Applicants respectfully submit that this rationale provided by the examiner for combining Gemelli and Huang is nothing more than a conclusory statement. What is the teaching, motivation or suggestion for such modification? The examiner has not attempted to explain why Gemelli is somehow deficient or why the proposed modification of Gemelli would be necessary or even desirable. The examiner simply has not provided “articulated reasoning with rational underpinning to support the legal conclusion of obviousness” as required by MPEP § 2143.

For at least the reason set forth above, it is respectfully submitted that the examiner has not made a prima facie case of obviousness. Accordingly, it is respectfully submitted that the examiner’s rejection of claim 14 under 35 U.S.C. § 103(a) should be withdrawn.

C. A Reasonable Expectation of Success Has Not Been Established

In order to establish a prima facie case of obviousness, the examiner must at least articulate a finding that there was reasonable expectation of success. See MPEP § 2143(A)-(G) and MPEP § 2143.02. However, in the August 4, 2008 office action, the examiner did not even attempt to establish such a finding of a reasonable expectation of success. Therefore, for at least this reason, the examiner has not made a prima facie case of obviousness, and the examiner's rejection under 35 U.S.C. § 103(a) should be withdrawn.

IV. The Rejection of Dependent Claims 20-29, 31-35 and 37 Should be Withdrawn

In the August 4, 2008 Office action, the examiner rejected each of dependent claims 20-29, 31-35 and 37 under 35 U.S.C. § 103(a). Dependent claims 20-29, 31-35 and 37 all depend from and incorporate all the limitations of one of independent claims 18, 30 or 36. Moreover, each of these dependent claims includes additional novel and non-obvious limitations. Accordingly, it is respectfully submitted that dependent claims 20-29, 31-35 and 37 are also allowable for at least the same reasons that independent claims 18, 30 and 36 are allowable, as well as additional reasons. Therefore, the examiner's rejection of claims 20-29, 31-35 and 37 should be withdrawn.

V. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this application is therefore respectfully requested.

In the event applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the applicant conditionally petitions therefore, and authorizes any fee deficiency to be charged to deposit account 13-0014.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Russ Fowler", with a long horizontal flourish extending to the right.

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